



# INSIGNIA® Fungicide

## INTRINSIC™ Research Highlights

### INSIGNIA:

- Controls key turf diseases (see over for detail) for up to 28 days
- Rainfast in 1 hour
- Low use rate
- INTRINSIC

INSIGNIA Fungicide powered by INTRINSIC has demonstrated excellent preventative disease control of key Canadian turf diseases such as Anthracnose, Pythium and Snow Mould as well as suppression of Dollar Spot.

It is now time to introduce INTRINSIC, the turf health benefits that come from INSIGNIA. When applied for its disease control capabilities, research has shown that turf treated with INSIGNIA may also provide additional turf health benefits in the form of increased stress tolerance to drought, saturated soils, extreme temperatures and mechanical stress such as aerification.

### How INSIGNIA powered by INTRINSIC Works:

There are three components of INTRINSIC:

**1. Disease Control:** INSIGNIA's outstanding fungicidal properties are the corner stone of INTRINSIC. INSIGNIA controls diseases by inhibiting respiration within the mitochondria of fungal cells, causing the fungus to die.

**2. Increased Growth Efficiency:** INSIGNIA also has activity within plant mitochondria, reducing the rate of respiration in plant cells. Decreasing respiration allows the plant to retain more stored carbon for growth, and to use available nitrogen more efficiently.

**3. Stress Tolerance:** Powered by INTRINSIC, INSIGNIA's excellent disease control and increased growth efficiency can lead to a reduction in the stress hormone ethylene as well as elevated levels of antioxidants and the plants own defense-signaling compounds.

Disease control, stress reduction and increased growth efficiency combine to create INTRINSIC, the turf health power of INSIGNIA.

Increased Growth Efficiency

Increased Tolerance to Stress



Disease Control

**Stress Management**  
Drought / Moisture  
Temperature Extremes  
Mechanical Stress





## INSIGNIA Powered by INTRINSIC:

### Diseases Controlled:

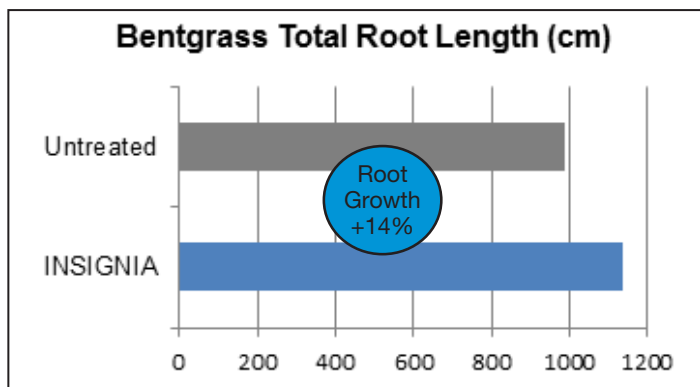
- Anthracnose
- Dollar Spot\*
- Grey Snow Mould
- Pythium Blight
- Microdochium Patch / Pink Snow Mould
- Take-All Patch\*
- Brown Patch
- Grey Leaf Spot
- Leafy Spot
- Rust

\* Suppression Only

### Root Growth

During periods of stress, such as aerification, drought or extreme heat, untreated turf can experience significant reductions in total root volume. Powered by INTRINSIC, INSIGNIA helps turf to overcome these stresses by improving root development and root system retention.

The benefits of INSIGNIA, powered by INTRINSIC, are most evident in situations when turfgrass is under attack by disease and when other stresses are evident.



12 Trials: A-1, Penncross, Colonial & SR1119 Creeping Bentgrass CA, IL, TN, 2009

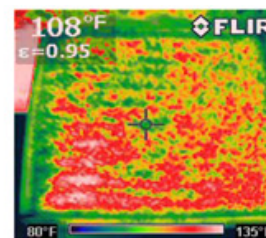
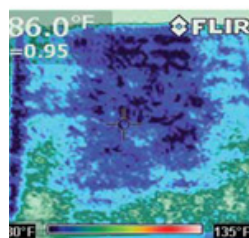
**Always read and follow label directions.**

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## Canopy Temperature

Powered by INTRINSIC, INSIGNIA-treated turf is able to tolerate drought stress and cool itself through normal evapotranspiration while the untreated turf shuts down, not allowing normal cooling, causing an elevation in canopy temperature.

Following six days of drought stress, infrared photography of bentgrass turf shows a 12°C (22°F) difference in canopy temperature



Average temperature of canopy. Photos taken on same date. Trial work in Center Valley, CA – 2010. Photo courtesy of Buzz Ueber

## When to apply INSIGNIA

To optimize INSIGNIA performance, apply preventatively before severe disease symptoms are visible. In studies by Rutgers University, this often coincided with late June/early July when the disease control and other INTRINSIC benefits of INSIGNIA fungicide were most apparent.

For rates and intervals related to specific diseases, refer to the INSIGNIA label.

Apply INSIGNIA in 4-12 L of water / 100m<sup>2</sup>.

For more information INTRINSIC and INSIGNIA fungicide, contact your local turf input specialist or visit [www.BetterTurf.ca](http://www.BetterTurf.ca)

